

**REMARKS**

**I. Status of Claims**

Claims 1, 3, 4, 6, 7, 9 and 10-43 are pending in the application. Claims 11-32 and 34 are withdrawn from consideration, and claims 1, 3, 4, 6, 7, 9, 10, 33 and 35-43 are rejected.

Claims 1, 9 and 10 are amended to recite that the electrolyte composition is in the form of a gel by the action of conductive particles. Support for the amendment can be found, for example, in the specification at page 9, lines 18-21 and page 13, lines 8-10.

Claim 6 is amended to correct dependency from claim 1.

No new matter is added, and the Amendment is being filed concurrently with a Request for Continued Examination (RCE). Accordingly, Applicants respectfully request entry and consideration of the Amendment.

**II. Response to Claim Rejections Under 35 U.S.C. § 103(a)**

A. Claims 1, 6, 9, 10, 33 and 35-39 are rejected under 35 U.S.C. § 103(a) as allegedly unpatentable based on Ono (JP 2003-157914) in view of Wang et al. (J. Am. Chem. Soc. (2003), vol. 125, pp. 1166-67).

B. Claims 3 and 4 are rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over Ono in view of Wang, and in further view of Ono.

C. Claims 7 and 42 are rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over Ono in view of Wang, in further view of Smalley et al. (U.S. Patent No. 7,074,310; hereafter "Smalley I").

D. Claims 40 and 41 are rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over Ono in view of Wang, and in further view of Tanaka et al. (U.S. Patent Application Publication No. 2003/0179537).

E. Claim 43 is rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over Ono in view of Wang and Smalley I, and in further view of Smalley et al. (U.S. Patent Application No. 2002/0085968; hereafter "Smalley II").

Applicants respectfully traverse.

Claims 1, 9 and 10 are drawn to a photoelectric conversion element comprising an electrolyte composition in the form of a gel by the action of the conductive particles, and the conductive particles comprise a material containing carbon as the main component. In the presently claimed invention, the electrolyte is made into a gel by interaction between  $\pi$  electrons in the  $sp^2$  orbitals of the carbon atoms and the cation of the ionic liquid. When carbon fiber or carbon nanotubes are used as the conductive particles, for example, as claimed in claims 6, 7, 41, 42 and 43, the carbon atoms form 3D-networks. In this case, ionic liquid penetrates into spaces present in the 3D-network by capillary action. As a result, the ionic liquid is physically adsorbed on the carbon atoms, and gelation of the electrolyte solution is facilitated.

Additionally, the following effects can be obtained by using carbon for gelation of the electrolyte solution. The carbon has a conductive property, and does not block transfer of an electron, but can transfer the electron, resulting in an increase in the photoelectric conversion efficiency of the presently claimed invention. In addition, the carbon is a lightweight substance

within the conductive materials. Therefore, it can reduce the photoelectric conversion element weight.

As admitted by the Examiner at page 3 of the Office Action, Ono does not disclose gelation of an electrolyte in the absence of a gelling agent. The Examiner relies on Wang to teach the gelation of an electrolyte using carbon-containing materials. Applicants respectfully disagree with the Examiner's characterization of Wang.

Wang discloses gelation of an electrolyte solution using  $\text{SiO}_2$  and using anatase and graphite. When  $\text{SiO}_2$  is used, the electrolyte solution may be in the form of the gel by a condensation reaction of the  $\text{SiO}_2$  (silanol group of the  $\text{SiO}_2$ ). On the other hand, when the anatase and graphite is used, these components need to be dispersed in a high ionic strength media to form the gel. Wang does not disclose gelation by using conductive particles containing carbon as the main component and does not disclosed that the electrolyte solution can be in the form of a gel by the action of the conductive particles. Accordingly, there is no teaching or suggestion that the use of carbon-containing particles would results in gelation of an electrolyte without the use of gelling agents and a person of ordinary skill would not have arrived at the presently claimed invention based on the Wang disclosure.

In view of the above, claims 1, 9 and 10 are patentable over Ono in view of Wang. Claims 3, 4, 6, 7, 33, 35-39 and 40-43 are also patentable, at least by virtue of their dependence from claim 1, 9 or 10, and because none of Smalley I, Smalley II or Tanaka cures the above discussed deficiency in the combination of Ono and Wang. Therefore, Applicants respectfully

AMENDMENT UNDER 37 C.F.R. § 1.114(c)  
U.S. Application No.: 10/564,314

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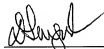
request reconsideration and withdrawal of the § 103(a) rejections of claims 1, 3, 4, 6, 7, 9, 10, 33, 35-39 and 40-43.

**Conclusion**

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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